

**REMARKS**

Claims 1-20 are pending in the present application. Claims 1, 5, and 13 are amended. Claims 1, 5, and 13 are independent claims. The Examiner is respectfully requested to reconsider the rejections in view of the following Remarks.

***Drawings***

It is gratefully acknowledged that the Examiner has accepted the drawing corrections filed on October 20, 2005.

***Acknowledgment of Information Disclosure Statement***

The Examiner is respectfully requested to acknowledge the Information Disclosure Statement filed on July 26, 2005. An initialed copy of the PTO-SB08 should be sent to the undersigned at the earliest convenience of the Examiner.

***Interview on March 13, 2006***

Applicants wish to thank Examiner Sunray Chang and Supervisory Patent Examiner Anthony Knight for taking the time to discuss the present application with Applicants' representative, Jason Rhodes (Reg. No. 47,305), during the personal interview on March 13, 2006. The substance of the Interview is provided below.

***Substance of the Interview***

**Claims Discussed:** Claim 1

**Prior Art Discussed:** U.S. Patent Application Publication 2004/0204775 to Keyes et al. (hereafter "Keyes").

**Identification of Proposed Amendment:** A proposed amendment to claim 1 was discussed. The proposed amendment was similar to the above amendment of claim 1.<sup>1</sup>

**General Results:** No agreement was reached as to whether claim 1 presently distinguished over Keyes. However, the Examiner agreed that the proposed amendment would warrant further consideration of the rejections based on Keyes.

### *Synopsis of the Present Invention*

An exemplary embodiment of the present invention monitors the operation of a plant 2 during a prior implementation of the plant process. Specifically, at this time, sensors 14 may be used for detecting the operation status of the plant, and inputting the detected results (operation data) into an operation database 13. Thereafter, the operation data in this database is analyzed to compute an operation efficiency or correlation coefficient for a predetermined variable for each operation element (e.g., turbine) of the plant. This may include obtaining a relational equation between an input and output (and other effecting parameters) based on a control model for each operation element, and determining which variables in the equation have a high correlation with overall efficiency of that element. Thereafter, regression analysis may be performed on the equation, based on the operational data for variables having a high correlation.

The results of correlation analysis for each operation element are then stored in a categorization efficiency table 4. Thus, during subsequent implementations of the plant process, a look-up of the categorization efficiency table may be performed using current conditions (e.g., temperature, sea water temperature, wind velocity) as input parameters, in order to output a control instruction. By only referring to a look-up table during subsequent implementations of

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<sup>1</sup> Applicants note that the actual amendment to claim 1 differs slightly from the proposed amendment. However, Applicants submit that the actual amendment is actually *narrower* than the proposed amendment discussed. This is because the actual amendment recites, “the correlation analyzing unit uses data collected...to compute the operation efficiency.”

the process, control instructions can be obtained almost immediately because there is no need for simulation or computation of operation efficiency.

***Rejection Under 35 U.S.C. § 102***

Claims 1-19 stand rejected under 35 USC § 102(b) as being anticipated by U.S. Patent Application Publication No. 2004/0204775 to Keyes et al. (hereafter “Keyes”). This rejection is respectfully traversed.

Initially, Applicants point out the following excerpt from MPEP § 2131:

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. V. Union Oil Co. Of California*, 814 F2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claims.” *Richardson v. Suzuki Motor Co.*, 868 F2d 1226, 1236, 9 USQP2d 1913, 1920 (Fed. Cir. 1989).

It is respectfully submitted that Keyes does not set forth each and every element as defined in the claims.

Independent claim 1 recites that **data collected during a prior implementation** of the predetermined process is used for computing an operation efficiency for each operation element, which is stored in a categorization efficiency table. The claim further recites that, **during a subsequent implementation** of the predetermined process, a look-up of this categorization efficiency table is performed in order to **output a control instruction** to each operation element **without simulating or computing an operation efficiency**. Independent claims 5 and 13 have been amended to recite similar features.

It is respectfully submitted that Keyes fails to disclose these features.

In the Response to Arguments, the Examiner asserts that Keyes teaches two stages for optimization. The Examiner asserts that, during the first stage, “the economic models are used for performing simulation and calculating measures of efficiency” (Office Action at page 7). According to the Examiner, during the second stage, Keyes “us[es] the model [having] been calculated to provide for better or more optimal control of the process...leading to maximum profitability” (*Id.*, citing the abstract of Keyes).

Thus, it is apparent that the Examiner interprets Keyes as having the following two stages: 1) using the economic models to perform simulations/calculations; and 2) using the results of the simulations/calculations to control the process. The Examiner relies on the abstract in Keyes to support this “two stage” theory.

However, Applicants point out that the following excerpt in the abstract of Keyes:

“The economic models can be used to provide financial statistics such as profitability, cost of manufactured product, etc. **in real time** based on the actual **current operating state of the process** and the business data associated with the finished product, raw materials, etc. These financial statistics can be used to drive alarms and alerts within the process network and be used as inputs for process plant optimizers, etc. **to provide for better for more optimal control of the process** and to provide a better understanding of the conditions which lead to maximum profitability of the plant.” (emphasis added)

As such, it is clear that Keyes teaches that, **during the current operation of a process**, the economic models perform their calculations **in real time** in order to control the process. Accordingly, both “stages” of Keyes are performed **during the same implementation of the process** being controlled.

Thus, Applicants respectfully submit that Keyes fails to teach or suggest outputting a control instruction during a particular implementation of the predetermined process without simulating or computing an operation efficiency, as required by independent claim 1. Instead, Keyes teaches that the economic models calculations are performed in real time during each

implementation of the process, so that the resultant parameters can be used to perform control during that same implementation to control the process. Thus, during each implementation of a process, Keyes must perform the time-consuming simulations and calculations associated with the economic models in order to output a control instruction.

Furthermore, Applicants respectfully submit that Keyes uses data collected during the current implementation of the process to output control instructions during that process. Paragraph 0019 of Keyes refers to “maintenance and monitoring functions, including data collection related to the operating status of the devices.” In paragraph 0032, Keyes teaches that this collected data is part of the process control data sources 68 (in Fig. 2), which is **input to the economic models** 72 (after being processed by data manipulation block 70<sup>2</sup>). Thereafter, Keyes teaches that the economic models perform economic calculations on this data (paragraph 0036), and provides the calculations to the process control system (paragraph 0037).

Accordingly, Keyes uses **data collected during the current implementation** of a process in order to perform real-time control. As such, Keyes fails to teach using data collected during a prior implementation of a process in order to calculate efficiency parameters used during a subsequent implementation of the process, as required by the independent claims.

At least for the reasons given above, Applicants respectfully submit that independent claims 1, 5, and 13 are allowable. Further, Applicants submit that claims 2-4, 6-12, and 14-19 are allowable at least by virtue of their dependency on claims 1, 5, and 13.

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<sup>2</sup> Keyes further teaches that even the data manipulation block may use “**modeling or estimation techniques** to provide missing data.” See paragraph 0035.

***Rejection Under 35 U.S.C. § 103***

Claim 20 stands rejected under 35 USC § 103(a) as being unpatentable over Keyes in view of U.S. Patent No. 5,970,804 to Robbat, Jr. (hereafter “Robbat”). Applicants respectfully submit that Robbat fails to remedy the deficiencies of Keyes set forth above in connection with independent claim 13. Specifically, the Examiner only relies on Robbat only to teach “a water conveyance system” (Office Action at page 6). Accordingly, Applicants submit that claim 20 is allowable at least by virtue of its dependency on claim 20.

***Conclusion***

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but to merely show the state of the art, no comment need be made with respect thereto.

In view of the above Remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination.

However, should the Examiner believe that any outstanding matters remain in the present application, the Examiner is respectfully requested to contact Jason W. Rhodes (Reg. No. 47,305) at the telephone number of the undersigned to discuss the present application in an effort to expedite prosecution.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

**Due: March 27, 2006**

Respectfully submitted,

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